

§ 58.30-35

times the maximum allowable working pressure. Drawings and calculations or a certified burst test report shall be submitted to show compliance with this requirement.

(d) Piston rods, except steering gear rams, shall either be of corrosion resistant material or shall be of steel protected by a plating system acceptable to the Commandant.

(e) Materials selection shall be in accordance with the requirements of § 58.30-15(b).

§ 58.30-35 Testing.

(a) All fluid power and control systems and components thereof shall be tested as required by this section.

(b) Accumulators constructed as pressure vessels under the provisions of part 54 of this subchapter shall be tested and retested as required by parts 54 and 61 of this subchapter.

(c) Fluid power and control systems and piping assemblies shall be given an installation test as follows:

(1) Fluid power and control systems and piping assemblies and associated equipment components, including hydraulic steering gear, in lieu of being tested at the time of installation, may be shop tested by the manufacturer to $1\frac{1}{2}$ times the maximum allowable pressure of the system. The required test pressure shall be maintained for a sufficient amount of time to check all components for strength and porosity and to permit an inspection to be made of all connections.

(2) Fluid power and control systems and associated hydraulic equipment components which have been tested in conformance with paragraph (c)(1) of this section and so certified by the manufacturer, may be tested after installation as a complete assembly by stalling the driven unit in a safe and satisfactory manner and by blowing the relief valves. Otherwise, these systems shall be hydrostatically tested in the presence of a marine inspector at a pressure of $1\frac{1}{2}$ times the maximum allowable pressure.

(3) Fluid power and control systems incorporating hydropneumatic accumulators containing rupture discs may be tested at the maximum allowable working pressure of the system in lieu of $1\frac{1}{2}$ times this value as prescribed in

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paragraphs (c)(1) and (2) of this section provided the accumulators have been previously tested in accordance with paragraph (b) of this section and welded or brazed piping joints are not employed in the system. If welded or brazed joints are employed, the system shall be tested in accordance with the requirements of paragraphs (c)(1) and (2) of this section except that the accumulators may be isolated from the remainder of the system.

(d) Fluid power and control systems shall be purged with an inert gas or with the working fluid and all trapped air bled from the system prior to any shipboard testing. In no case shall air, oxygen, any flammable gas, or any flammable mixture of gases be used for testing fluid power systems.

(e) Fluid control systems, such as boiler combustion controls, containing components with internal parts, such as bellows or other sensing elements, which would be damaged by the test pressure prescribed in paragraphs (c)(1) and (2) of this section may be tested at the maximum allowable working pressure of the system. In addition, all fluid control systems may be tested using the system working fluid.

§ 58.30-40 Plans.

(a) Diagrammatic plans and lists of materials must be submitted for each of the fluid power and control systems listed in § 58.30-1(a) that is installed on the vessel. Plan submission must be in accordance with subpart 50.20 of this subchapter and must include the following:

- (1) The purpose of the system.
- (2) Its location on the vessel.
- (3) The maximum allowable working pressure.
- (4) The fluid used in the system.
- (5) The velocity of the fluid flow in the system.
- (6) Details of the system components in accordance with § 56.01-10(d) of this subchapter.

[CGD 73-254, 40 FR 40168, Sept. 2, 1975]

§ 58.30-50 Requirements for miscellaneous fluid power and control systems.

(a) All fluid power and control systems installed on a vessel, except those

listed in § 58.30-1(a), must meet the following requirements:

(1) Diagrams of the system providing the information required by § 58.30-40(a)(1) through (4) must be submitted. These are not approved but are needed for records and for evaluation of the system in accordance with § 58.30-1(a)(14).

(2) The hydraulic fluid used in the system must comply with § 58.30-10.

(3) The installed system must be tested in accordance with § 58.30-35(c)(2).

(4) All pneumatic cylinders must comply with § 58.30-30.

(5) Additional plans may be required for “fail-safe” equipment and for cargo hatch systems with alternate means of operation.

[CGD 73-254, 40 FR 40168, Sept. 2, 1975]

Subpart 58.50—Independent Fuel Tanks

§ 58.50-1 General requirements.

(a) The regulations in this subpart contain requirements for independent fuel tanks.

(b) Passenger vessels exceeding 100 gross tons constructed prior to July 1, 1935, may carry gasoline as fuel not exceeding 40 gallons to supply the emergency electrical system. Passenger vessels exceeding 100 gross tons constructed on or after July 1, 1935, and all emergency systems converted on or after July 1, 1935, shall use fuel which has a flashpoint exceeding 110 °F.

(PMCC) for internal combustion engine units. Such vessels shall carry a sufficient quantity of fuel to supply the emergency electrical system. Refer to § 112.05-5 of Subchapter J (Electrical Engineering), of this chapter.

(c) An outage of 2 percent shall be provided on all fuel tanks containing petroleum products.

[CGFR 68-82, 33 FR 18878, Dec. 18, 1968, as amended by CGD 73-254, 40 FR 40169, Sept. 2, 1975]

§ 58.50-5 Gasoline fuel tanks.

(a) *Construction*—(1) *Shape*. Tanks may be of either cylindrical or rectangular form, except that tanks for emergency electrical systems shall be of cylindrical form.

(2) *Materials and construction*. The material used and the minimum thickness allowed shall be as indicated in Table 58.50-5(a) except that consideration will be given to other materials which provide equivalent safety as indicated in § 58.50-15.

(3) *Prohibited types*. Tanks with flanged-up top edges that may trap and hold moisture shall not be used.

(4) *Openings*. Openings for fill, vent and fuel pipes, and openings for fuel level gages where used, shall be on the topmost surface of tanks. Tanks shall have no openings in bottoms, sides, or ends, except that an opening fitted with threaded plug or cap may be used for tank cleaning purposes.

TABLE 58.50-5(a)

Material	ASTM specification (all incorporated by reference; see 46 CFR 58.03-1)	Thickness in inches and gage numbers ¹ vs. tank capacities for—		
		1- through 80-gallon tanks	More than 80- and not more than 150-gallon tanks	Over 150-gallon tanks ²
Aluminum ⁵	B 209, Alloy 5086 ⁶	0.250 (USSG 3)	0.250 (USSG 3)	0.250 (USSG 3).
Nickel-copper	B 127, Hot rolled sheet or plate	0.037 (USSG 20). ³ ..	0.050 (USSG 18)	0.107 (USSG 12).
Copper-nickel	B 122, Alloy No. 5	0.045 (AWG 17)	0.057 (AWG 15)	0.128 (AWG 8).
Copper	B 152, Type ETP	0.057 (AWG 15)	0.080 (AWG 12)	0.182 (AWG 5).
Copper-silicon	B 96, alloys C65100 and C65500.	0.050 (AWG 16)	0.064 (AWG 14)	0.144 (AWG 7).
Steel or iron ⁴	0.0747 (MfgStd 14)	0.1046 (MfgStd 12) ..	0.179 (MfgStd 7)..	

¹Gauges used are U.S. standard “USSG” for aluminum and nickel-copper; “AWG” for copper, copper-nickel and copper-silicon; and “MfgStd” for steel.

²Tanks over 400 gallons shall be designed with a factor of safety of four on the ultimate strength of the material used with a design head of not less than 4 feet of liquid above the top of the tank.

³Nickel-copper not less than 0.031 inch (USSG 22) may be used for tanks up to 30-gallon capacity.

⁴Fuel tanks constructed of iron or steel, which is less than $\frac{3}{16}$ -inch thick shall be galvanized inside and outside by the hot dip process.

⁵Anodic to most common metals. Avoid dissimilar metal contact with tank body.

⁶And other alloys acceptable to the Commandant.